

This report is a tool to be used internally by the City of Lincoln, Public Works and Utilities Department to continuously monitor traffic flow along arterial streets and make signal timing adjustments necessary to accommodate changes in traffic volumes and travel patterns. The objectives of the signal timing adjustments are to maximize the progression of vehicles along the arterial (reduce travel time) and optimize individual intersection operations (minimize delay). However, achieving both objectives simultaneously may not always be possible.

INTRODUCTION

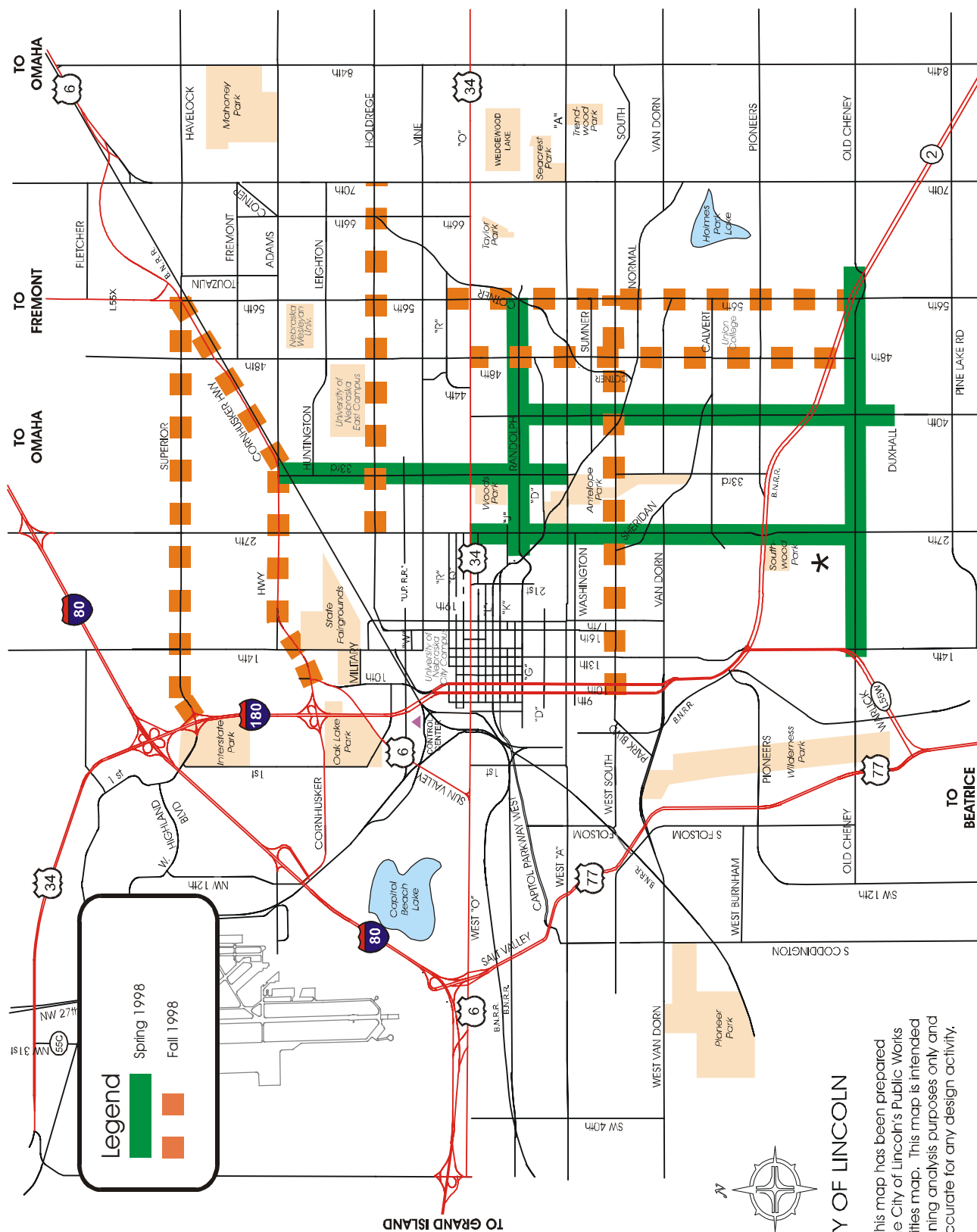
It is the goal of the City of Lincoln, Public Works and Utilities Department, Engineering Services Division, to monitor the City's main arterials over time. Approximately every three years, each arterial should be monitored to track traffic patterns, growth and operations. In Spring 1998, the City contracted The Schemmer Associates Inc. (TSA) to conduct an analysis and study of traffic conditions on ten arterial corridors to use as a framework for future arterial evaluations. Along these ten corridors, travel time and intersection delay studies were conducted with the goal of improving traffic operations (decreasing delay and travel time) through modified signal timings, rather than by widening City streets or other physical roadway improvements. The ten corridors included in this contract included:

- South 27th Street (Old Cheney Road to "O" Street)
- North/South 33rd Street ("A" Street to Cornhusker Highway)
- South 40th Street (Duxhall Drive to Randolph Street)
- South 48th Street (Nebraska Highway 2 to "O" Street)
- Superior Street (I-180 to Cornhusker Highway)
- Cornhusker Highway (11th Street to Superior Street/Havelock Avenue)
- Holdrege Street (27th Street to 70th Street)
- Randolph Street (Capitol Parkway to 56th Street/Cotner Boulevard)
- South Street (9th Street to 56th Street)
- Old Cheney Road (Warlick Boulevard to Nebraska Highway 2)

As a result of studies being performed as part of the East "O" Street Project (1999), an 11th corridor was added to this list:

- 56th Street (Nebraska Highway 2 to "R" Street)

All of the corridors listed above, which were studied during the Spring of 1998 and Fall of 1998, are shown in Figure 1.



**Figure 1:
1998 Travel Time
Study Corridors**



Note: This map has been prepared using the City of Lincoln's Public Works and Utilities map. This map is intended for planning analysis purposes only and is not accurate for any design activity.

In April 2000, TSA was contracted to conduct studies along six additional corridors as listed below:

- North 27th Street ("O" Street to I-80)
- North 48th Street ("O" Street to Superior Street)
- North 70th Street ("O" Street to Havelock Avenue)
- Nebraska Highway 2 (Old Cheney Road to Van Dorn Street)
- Pioneers Boulevard (33rd Street to 56th Street)
- Vine Street (14th Street to 70th Street)

These corridors are shown in Figure 2.

Recently, in February 2002, TSA was contracted to study six additional corridors as listed below:

- 9th/10th Streets (Van Dorn Street to "Q" Street)
- 16th/17th Streets (South Street to Vine Street (17th Street)/"W" Street (16th Street))
- "O" Street (9th Street to 33rd Street)
- Normal Boulevard/Capitol Parkway/ "K" & "L" Streets (9th Street to 56th Street)
- Superior Street (I-180 to Cornhusker Highway)
- Cornhusker Highway (11th Street to Superior Street/Havelock Avenue)

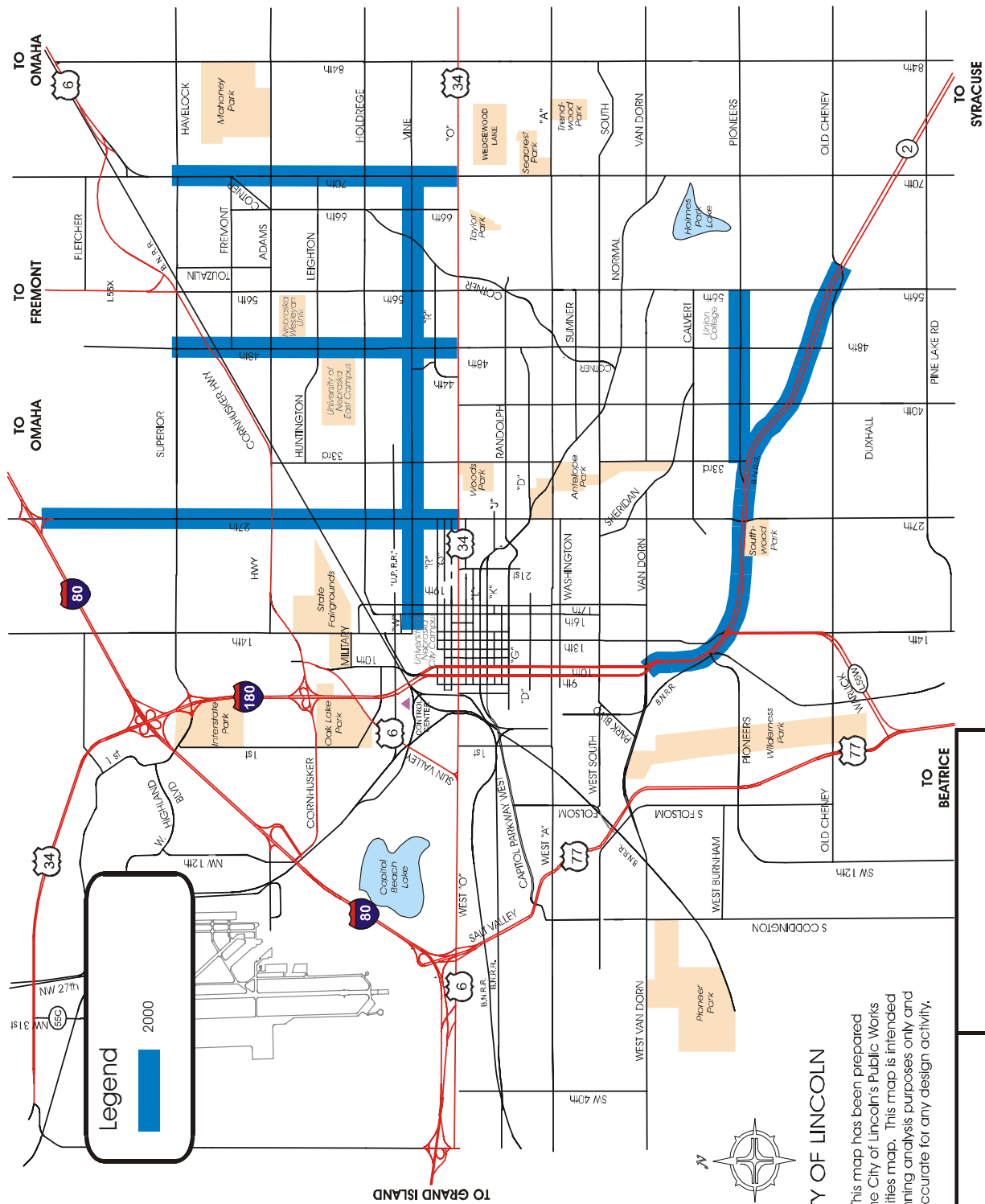
Based on proximity and relationship to the above six corridors, two corridors were added to this list:

- South 27th Street (Van Dorn Street to 'O' Street)
- North 27th Street ('O' Street to Kensington Drive)

These corridors, which were studied in the Spring and Fall of 2002 and the Spring of 2003, are shown in Figure 3.

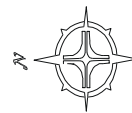
Tasks performed as part of this project include:

1. Performing signal timing optimization and coordination analysis for these eight corridors. The objective of this task was to provide a coordinated traffic signal system to reduce vehicle delays not only along the specified corridors, but also at the intersecting cross-street approaches.
2. Conducting "before" travel time studies along seven arterial corridors and "after" travel time studies along eight arterial corridors. "Before" intersection delay studies were conducted at 44 locations, and "after" intersection delay studies were conducted at 46 locations. The objective of this task was to perform traffic engineering studies to quantify changes in traffic operations resulting from signal timing modifications. As described previously in this section, this task is also used to monitor the City's main arterials to track traffic patterns, growth and operations over time. Since the



Note: This map has been prepared using the City of Lincoln's Public Works and Utilities map. This map is intended for planning analysis purposes only and is not accurate for any design activity.





Note: This map has been prepared using the City of Lincoln's Public Works and Utilities map. This map is intended for planning analysis purposes only and is not accurate for any design activity.

**Figure 3:
2002-2003 Travel Time
Study Corridors**



North 27th Street corridor was previously studied in Fall 2000, results of the “after” studies from the 2000 contract were used as the “before” study results for comparison to the “after” studies for this contract.

3. Conducting traffic volume data collection activities, including 6-hour turning movement counts at 20 signalized intersections and 48-hour mechanical (“tube”) counts at 50 locations. The turning movement counts were collected at intersections within the eight study corridors that required updated turning movement volumes. The mechanical counts were collected at locations throughout the City for general use by City staff and others.

All data collection activities, methodologies and calculations related to the travel time and intersection delay studies were performed based on nationally accepted engineering practices outlined by the Institute of Transportation Engineers (ITE).